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FIVE CENTURIES OF POLISH LEARNING

By

PROF. STANISLAW KOT

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FOREWORD

THESE lectures, which Dr. Kot was good enough to deliver under my auspices in Oxford, are the work of a very busy man. Dr. Kot has described them as a piece of improvisation; they are not the outcome of long and quiet reflection in the study, but of a few hours snatched from the life of a hard-worked statesman. Yet they could have been written only by a scholar, and indeed Dr. Kot is one of Poland's most distinguished scholars. His aim has been to show how learning has always been a significant and vital element in the history of the Polish state, in times of trouble as well as in days of power and glory. He has sketched the history of Poland in the light of the transmission to the east and growth in the eastern part of Europe of the learning of western Europe. His own concern for science and learning helped to turn him into a party leader, a social reformer, and a minister of state.*

Dr. Kot was Polish ambassador in Moscow in 1941. Readers of this little book will note that, almost from the first stage to the last, Polish history appears in conflict with Russian history and that sometimes Polish culture and learning have suffered at Russian hands. Dr. Kot's strong conviction that Poland's future relations with Russia can and must bring this state of things to an end has stern experience behind it, and also the faith of a true scholar that the fundamental things of the mind and spirit know no frontiers.

F. M. POWICKE.

Oriel College, Oxford,

August, 1941.

* Minister of Interior in 1942 and now Minister of Information in the Polish Government in London. He represents the Peasant Party.

FROM THE EDITOR

IT may be interesting for our Indian readers to know that the first book on India in Poland was written in 1768 and first Sanskrit Grammar in Europe was Published in 1828 in Warsaw; that modern Poland had three chairs of Sanskrit in her Universities; that for all linguistic studies Sanskrit was compulsory. Several prominent Indologists wrote original and interesting books not only in Polish but in French, German, Italian and English.* The most famous and talented was Prof. Schayer of Warsaw University, president of the Indo-Polish Society, author of several most valuable books. Prof. Michalski was the translator and commentator of the *Bhagwad Gita* in Polish and French.

Prof. Willman Grabowska was the first lady professor of Sanskrit in the University of Paris-Sarbonne, and since 1916 in Cracow. She visited India in 1937, and was collaborating with Prof. Monier Williams in his Indological writings. Prof. Stasiak of Lwow University, an enthusiastic lover of India, where he spent some time in 1937-38 and published several articles and books,

*Professor A. Gawronski of the Lwow University who know well over 40 languages published : Studies on the Sanskrit Buddhist Literature: Gleanings from Aswaghosha's Buddhacharita : Sanskrit Grammer /1932/ a brilliant scientific work.

Professor Schayer published 12 books in German, several in English and many in Polish like : Indian Literature, a Study of Ancient Indian Philosophy; Hindu Philosophy; etc, Professor Michalski-Iwienski translated the Atma-Bodha, the Upanishads, the Dhammapada and Bhagawat Gita.

Mr. A. Lange translated Ramayana and Mahabharata abridged, etc.

Dr. Falk published a Study on Indian and Polish Thought; a brilliant scientific book - Nama-Rupa (published by the University of Calcutta in 1943) and several books in Italian.

And the Editor of " The Indo-polish Library " translated the Bhagawat-Gita and two volumes of Hindu mystic songs.

knew some modern Indian languages besides Sanskrit. There was in Warsaw University a Lecturer of Hindi and Bengali—Mr. Ghoshal who is now known in India by his books on Poland in Bengali.

There is also a Lecturer of Polish and Slavonic literature and culture in the University of Calcutta. The lecturer is a distinguished scholar in Sanskrit and Indian philosophy—Dr. Maryla Falk, author of several original studies on Indian thought, published Poland, Italy, France and India.

The last endeavour of Dr. Falk and a group of lovers of Indian philosophy is an association called Polish Oriental Research Centre whose chief aim is to study Indology and revive this science in it's pristine glory, in post-war Poland where all science and learning will have to be organised anew.

Bombay

April 1944

CHAPTER ONE

THE OLDER KINGDOM

THE kingdom of Poland came into being late in the tenth century in the plainlands lying between the Oder and the Vistula rivers. After the Union with the Grand Duchy of Lithuania, four hundred years later, the Joint Kingdom reached to the river Dwina in the north, and included the nearer tributaries of the Dnieper in the east. This broad area was at that time mostly a land of forests and lakes, and the work of creating centres of civilization was slow. Nothing was known here of the traditions of economic life, or of the arts of building, that were common in the west. Neither in the field of material well-being, nor the things of the mind and spirit did Poland possess any traces of the heritage of the Roman empire ; things which, on the Rhine and the Danube, were so great a help to the Germanic peoples in raising the level of their culture.

The Poles were a Slavonic stock—gentle, hospitable, and not of predatory instincts. They inhabited a country without natural frontiers, save for the Carpathian mountains in the south. As neighbours to the west they had the warlike German empire, already at that time engaged in exterminating the Slavonic tribes to be found along the coastline of the Baltic, and, indeed, everywhere eastward of a line reaching from Hamburg to Leipzig. The German sword was being used to bring Christianity to the Slavs, and to deprive them of their land, their speech, and their customs. On its eastern borders, the new kingdom was faced by the early Ruthenian state of Kiev, and later by the Tartars. In the north, its security was threatened from the thirteenth century on by the Teutonic Order which was subjugating the ancient Prussian tribes. From

the fifteenth century, it had also to meet the advance of Turks.

The dynasty of the Piasts succeeded in uniting a number of Polish regional groups into a single state and nation. They were a native royal line, and were held to be of peasant origin. This work was done before the year 1000 A.D., and the first Polish prince known to us by name had already extended relations with his neighbours. It is notable that his daughter, Swietoslawa was the wife of King Sweyn of Denmark, conqueror of England, and mother of the famous King Canute. He accepted the Christian faith from his brother-Czech nation, and at once established direct connections with Rome, in order to avoid the not disinterested mediation of the Germans. At once the work began of introducing schools and letters into this still virgin territory, chiefly of course with the help of the clergy and the monks. During four hundred years the royal court of the Piasts was active in promoting the elements of Latin Christianity. The same was true of the ducal courts of the same Piast line, which ruled in the vassal lands of Masovia and Silesia.

I

The first monasteries were founded as outposts of civilization by mother institutions in Burgundy, Flanders and the Rhineland. They introduced the art of building in stone and brick, they brought improved methods of agriculture and gardening ; but they did little in the realm of the spirit, since the period was rather one of decline of the monastic Orders. Apart from this, being foreigners, the monks had too little real contact with the native population. Moreover, from the thirteenth century they were largely of German speech and origin.

The Polish church and people profited more from the work of the cathedral schools, which served the needs of the already growing towns. Their teachers had brought

with them the lore of Italy and of Paris, the most famous among them being Vincent Kadlubek, who prepared the first Chronicle of Polish history about 1200 A.D. He seems to have known Gervase of Tilbury, and to have given the Englishman information about Poland for his work *Otia Imperalia*. In the field of science proper the most learned monk was Vitello; a mathematician, who specialized in optics.

Then came the terrible Tartar invasion, which virtually destroyed Polish urban life. The work of reconstruction was done largely with the help of German colonists, who brought with them burgher architecture, arts and crafts of all kinds, and—above all, the *jus teutonicum* (das magdeburger Recht), as a better basis for civic organization. But they did little for things cultural, since they had at heart rather the interest of business and industry. In general, cultural influences continued to come rather from Italian sources, and a stream of Polish students began to flow to the universities of Bologna and Padua. Before long, there existed in both these cities *nations polonicae*—student organizations composed mostly of Poles.

The last king of the Piast dynasty, Casimir the Great, founded the University of Cracow in 1364. It was impossible to continue longer without such an institution. Already the internal life of Poland did not reveal any essential differences from that of the countries drawn earlier into the orbit of Latin Christianity. The Royal Court, the administration, the nobles, the towns, the clergy—both secular and monastic, diplomacy and alliances, law and the law courts—all these were similar to those found in other countries; all had a firm foundation, and were on the way to normal development in political and social life. Real work however began after the reorganization of the University carried out by Queen Jadwiga in 1400. A stimulus was provided by the need for educating priests

and monks to serve in the Lithuanian lands—only just united with Poland. The new dynasty was that of Jagiellos, the Grand Dukes of Lithuania, who had never been in touch with the Christian faith, and who remained still for some time illiterate. This task of carrying the faith to the as yet unopened territories of the north-east, was already being disputed by the Teutonic Knights of the Cross, who regarded themselves as sent by Heaven to evangelize, and to conquer with the sword, the lands east of the Baltic.

II

Polish learning was young, and Cracow was its cradle. The lively infant drew its inspiration chiefly from the Italian universities, from Paris and from Prague; and it soon attained to the general European level. The number of manuscripts that have survived from those times to our own would themselves be a proof that Cracow professors had mastered the thought and learning of the continent. In particular one finds a warm sympathy for the doctrine known as Nominalism. The 15,000 *incunabula*, which in spite of losses by destruction and plunder were preserved in Poland up to the outbreak of the present war, are sufficient proof of the attention Poles were giving to the writings of mediæval thinkers. A number of these were printed in the Cracow press of a certain Caspar, founded in 1417. Moreover, Cracow scholars took a keen interest and share in the work of the Church Councils of that time. They supported the demands for ecclesiastical reform, opposing the position taken up by the Roman Curia in ways that attest their sound understanding of the principles of both theology and law.

A masterpiece of legal knowledge was the campaign waged by Paul Wlodkowic at the Council of Constance in 1415, in the defence of the unoffending heathen. In various treatises he sought to prove that no man should use the

sword in the spreading of the Christian faith; the very thing then going on at the hands of the Teutonic Knights in the lands east of the Baltic. Some of the Cracow professors showed sympathies with the reform movements of Wiclif and Jan Hus. One of the most interesting Polish poems from those times came from the pen of a Cracow man. Here is the first couplet :

Poles and Germans all, men of every speech :

When you are in doubt, then let Wiclif teach !

An enduring proof of the quality of learning found in the university of Cracow in the late fifteenth century is the huge History of Poland written in Latin in ten volumes by Jan Dlugosz. This work was based on a wealth of documentary materials of all kinds, and Dlugosz owed everything he knew to his Cracow teachers. At an advanced age, in order the better to pursue his researches, he set about learning both the Ruthenian and German languages.

As elsewhere in Europe, the exact sciences were very much in their infancy. Medicine existed, and it provoked the study of Botany in the interests of healing. By 1472 Jan Stanko had prepared a treatise on Polish *flora*, using for herbs and flowers the Polish names that prevail to-day. But the chief glory of the University of Cracow were its chairs of mathematics and astronomy—the only ones existing at that time in Central Europe. Around them gathered the school of Cracow astronomers—Martin Krol, Martin Bylica and Albert of Brudzew being the more famous. It was to these men, according to the legend, that Faust made his way in order to complete his education. Numbers of students went to Cracow—from the German lands, from Hungary, even from Scandinavia and Switzerland. It was in Cracow, as all the world knows, that the young Nicholas Copernicus, greatest of scientists of his age, laid the foundations of his learning. The entry of his name in the *Album studiosorum* of the university can still be seen

by the visitor. His pupils, in that same university, defended his views right through the following century, in the teeth of all the attacks upon them.

The Age of Humanism had now arrived, in which the Cracow University attained the zenith of its popularity. Students came from all points of the compass, the largest number of freshmen being enrolled in the years 1501-1510—3,215 in all. Of this number 1501 came from Polish lands, and 1714 from abroad.

The English traveller, Leonard Coxe of Thame, later principal of the Abbey School in Reading, had gone to the continent as a young man—to learn and to earn. He spent some time in Poland, and left behind him a detailed testimony as to the quality of the studies, and the temper of the teaching staff, in Cracow. It is found in a lecture given in 1518 *de Laudibus celeberrimae Academiae Cracoviensis*.¹ A factor in the development of learning and research was the rapid increase in Cracow after 1500 of the number of printing presses and book shops. At first only Latin works were published, but Greek and Hebrew soon followed. The first Polish book appeared in 1513. After Cracow the most important publishing centres for Polish works were Königsberg and Brest Litovsk. The Latin *incunabula* had been sought after only by the clergy; now books were wanted by the laymen, at first in the towns, but very soon by the landed gentry also. All this was a move in the direction of more secular thinking, more attention to topical questions, and a definitely national tone.

Private collections of books were formed in Poland early in the sixteenth century. Of special value was a collection of the manuscripts of Erasmus of Rotterdam. They had been bought by the master's beloved Polish pupil,

¹ Two years before Coxe gave his lectures, in 1516, the university had commenced the erection of a suitable library-building to house its books. To-day four centuries after the event, the Germans have announced to the world the opening of a 'public library in Cracow as a novelty!' The building used by them is the new one, just completed by the Poles before the outbreak of war.

Jan Laski, but were kept by Erasmus for his own use until his death. By some chance, a copy of the New Testament belonging to Laski's library, is preserved in Queen's College, Cambridge.

III

Humanism brought with it, all over Europe, the popularizing of knowledge. Learning ceased to be the special privilege of the clergy, and many of the Polish aristocratic class turned eagerly to pursue it. The schools of the country, including the universities, seemed to them to be too much under the control of the Catholic Church; and the sons of the gentry preferred to leave their Polish schools for the use of the commoners, while they themselves went to study abroad. Their way led to the West and the South, in particular to the universities of Northern Italy, which were frequented by many Poles during the period of the Renaissance. In Padua the *natio polonica* showed an increase of fresh blood every year of more than a hundred names. On the other hand, their interest in the religious reformation drew many sons of Polish families to study in Wittenberg and Leipzig, or in Basle and Heidelberg. They were also to be found in Leyden and Franeker; and even in Sedan and Orleans in France.

Not a few Poles of that time were distinguished for their learning. There were the Catholic theologian, Cardinal Stanislaw Hosius, and the Protestant theological teacher, Jan Laski. A master of philosophical thought was Andrew Patricius, collector and editor of the *Fragmenta* of Cicero, and Jan Maczynski—compiler of a Polish-Latin dictionary. Famous in medicine was Joseph Strus—student in the workings of the human pulse. Then the geographer, Jan of Stobnica, first to report the discoveries in the New World in his *Introductio in Ptolomeum*, 1512; and Matthew of Miechow, who devoted himself to demolishing the fairy

tales of Ptolemy about Eastern Europe. Finally, Bernard Wapowski, a colleague of Copernicus, made himself a name by his great map of Poland, Lithuania and East Prussia, completed in 1526. Among historians of eminence were Martin Kromer, who made use of the state archives in preparing his history of Poland; and Lawrence Goslicki, authority on ancient Rome, whose booklet *De Optimo Senatore* was then translated into English in the years 1568, 1607 and 1733 as "The Accomplished Senator."

It must be admitted, however, that the Polish upper class, as a whole, remained indifferent both to learning and to its pursuit. They were content with a smattering of education, to which many of them added the knowledge of some foreign language, as well as some study of law—a thing of value in local affairs, in parliament, or in the army.

Even when inborn gifts gave promise of the pursuit of higher studies, a good beginning would often end in complete indifference to serious work. This was a source of deep anxiety to Polish scholars of that time. About the middle of the sixteenth century we have at least ten writers expressing their views about these peculiarities of the Polish genius.

'Our capacities,' wrote Patricius, 'are in no way inferior of the talents possessed by other nations, but one thing checks or even destroys them. It is that, when we have hit upon something in a particular field, we get hold of a little here and a little there; but we do not show proof of endurance in the mastering of any branch of science. Wanting to do everything, we become experts in nothing.'

This dislike of effort and system, above all of specialization, was observed by many as the chief reason why Poles did not achieve eminence in the exact sciences. They did notable things, but they remained amateurs in everything.

No town life with its discipline for them, but the freedom of their landed estates, where they could ride and hunt and do as they please! In general, serious study or writing was not easy in the open country, for the lack of suitable

atmosphere, of stimulus to work and of libraries, and other materials.

A source of many weaknesses in the Poland of the sixteenth to eighteenth centuries was the dislike of the Polish gentleman for business dealings, his willingness to leave everything of that kind to strangers. It was partly on this account that the cities of Poland had as burghers so many foreigners—Germans, Italians, Scots and Armenians, not to mention a great number of Jews. True, after a time these families were usually assimilated, and became real Poles; but then they regarded it as an honour to be admitted into the gentry, and to settle on the land. The result was unfortunate for all urban institutions, including the schools. There was still a strong tendency on the part of the well-to-do to have their sons and daughters taught at home by private tutors, after which they would go abroad for ‘finishing’.

IV

We must now go back for a little and look at the course of events in regard to abstract studies and research. These never found much favour in the minds of the Poles of those generations. During the Renaissance period, there was some fine prose writing devoted to ethics and to discussion of the social and political order. This was a natural consequence of the religious and political tension, and of the practice of freedom of speech and of belief. What is more, the decision after 1572 to *elect* the successors to the throne, was of itself bound to provoke controversy. Of enduring value was the work of Andrew Frycz-Modrzewski *De Republica emendanda*, published in Basle in 1554 and 1559—in Latin, so as to make it accessible to non-Poles. Here one finds a synthesis of the great aims of the reformers, and an effort to realize the best that humanism could offer in the social order. Frycz did battle for the equality

of all classes before the law, and for the sacredness of the life of the common peasant in the hands of an angry landlord. Others followed in his wake, with even more radical views. Among them were the Polish Brethren, most extreme of reforming crusaders—often called Socinians. They came out in opposition to all militarism, and to predatory politics in any form. At the same time, they championed the cause of the under-dog in the economic world, condemning exploitation in any form. Curiously enough, they also used against communism arguments which are perfectly valid to-day.

One result of this cultural and political ferment was the rise in the sixteenth century of many splendid Middle Schools. The first of these humanistic academies was founded by Bishop Lubranski in 1519, in Poznan. The Protestant leaders, who composed by 1550 a large part of the nobility and gentry, were keen on having their own institutions, with philosophy as a compulsory subject, and a study of both Greek and Hebrew in addition to the universally known Latin. For the Lutherans the largest institution of this kind arose, by charter of the Polish king, in Koenigsberg—the chief city of East Prussia, which was at that time a vassal state to the Polish Crown. The purpose was of course the training of leaders for the Lutheran faith, and of missionaries for surrounding lands. Other Middle Schools of note were founded by the Lutherans in Danzig and Torun. The needs of the Calvinist denomination were met by the famous Pinczow schools in Southern Poland, by a school in Sluck in the East, and another in Leszno in the West. During the Thirty Years' Wars, the director of the last-named school was the exile Czech pedagogue, the world-famous Bishop, Jan Amos Komensky.

The academy in Rakow, founded by the Polish Brethren, became a famous institution at the height of the Reformation struggle. Its founders were the forerunners of the

Unitarian Church in the English-speaking world; and Rakow was a centre from which the propagating of rationalism in religious thinking was carried to France, Holland and the British Isles. There has been preserved in Oxford a characteristic letter to John Foxe, author of the *Book of Martyrs*, written by the Polish Brother, Simon Budny.

The Catholic Church was not slow in meeting this challenge. At first it was on the defensive, but then it went over to the attack by establishing its own schools, chiefly those of the Order of the Jesuits. It was they who founded the academy, later the university, of Wilno, in 1578, as an outpost of studies in the north-east. The new school was meant to serve the Grand Duchy of Lithuania and the neighbouring lands on the Baltic, as well as the Ukrainian provinces to the south. Its first Rector was the eminent preacher, Peter Skarga; and among the professors was the latinist, Sarbiewski, whose poetry was known all over Europe. His work appeared in England in at least three editions—in 1646, 1684 and 1689.

In the eastern provinces beyond the Vistula, a new university was founded at Zamosc by the most distinguished statesman of those times, the Great Hetman and Chancellor, Jan Zamoyski. Thoroughly trained in the College de France, in Sturm's famous school in Strasbourg, and at the University of Padua, Zamoyski divided his energies during a long life, with equal zeal, between learning and public service. He was the author of a useful book *De Senatu Romano*, and he would interrupt his leading of military campaigns against Moscow, the Tartars, the Hapsburg Emperors or the Swedes, in order to deal with questions relating to his beloved Academy in Zamosc. He carried on a lively correspondence with the first scholars of Western Europe, and was instrumental in bringing some of them to Poland. The professor of Roman law was the Scot, William Bruce, who then became the first resident-envoy

of Great Britain to Poland.

One of the striking things about Polish intellectual life in those years was a practice which encouraged theological studies by members of all the contending denominations. It also helped to promote religious tolerance, and the use of the intellect in dealing with differences in regard to the faith. I refer to the public debates on religion, which were held during two whole centuries between adherents of the different churches. The earliest of these took place in Cracow, between the leaders of the Hussite movement and their opponents: a famous one being that of 1481 in the Royal Palace itself, in the presence of King Wladyslaw Jagiello. Here the principles of Hus were defended by an Oxford man, Peter Payne. We have exact records of a famous debate in Piotrkow in 1565, lasting several days; in which anti-Trinitarian views prevailed. This meeting excited comment even in faraway France. We possess also records of sixteen debates from the sixteenth and seventeenth centuries, between the Unitarians and the Catholics. For Catholic theology the most fruitful was the *colloquium charitativum* in Torun in 1645. Here King Wladyslaw IV tried in vain to bring the Catholics and Protestants together. One of the reasons for his failure was the difference existing between the Calvinists and Lutherans—a fact which caused keen regret to a distinguished student of contemporary events—the Dutch scholar Grotius. The Polish Brethren were not admitted to this discussion because of Protestant objections. Their views were felt to be too extreme. This famous debate went on during thirty-six sessions, and eighty theologians took part.

By this time—the end of the sixteenth century—the outreach of Western thinking had been greatly extended in the East of Europe. Printing presses and libraries were now to be found where virtual illiteracy had prevailed a century earlier. Latin Christianity and the revolt of the

Renaissance against it were knocking at the doors of orthodox Ruthenia. The Mother City of Russian civilization, Kiev, was to become the chief centre of these westernizing influences.

I might remind you that in 1618 the territory of the Joint Kingdom (Poland and Lithuania) was almost equal to that of Germany and France taken together before the present war. The organizing of education, and the nurture of learning over such a vast area certainly called for a very great effort. The broad Ukrainian and White Ruthenian lands had felt the impact of the Reformation, and now came the working out of the Union of Brest (1596): by which a considerable part of the Eastern Church was brought under the overlordship of Rome. A flood of new ideas was thus let loose on the church and the nation. The leader of this forward movement, notably in education, was the Metropolitan of Kiev, the eminent Peter Mogila; founder of a new theological seminary, in which the programme of studies was largely copied from the Schools of Poland. From Kiev the influences of western thought found their way northward to Moscow, and southward into Moldavia. At that time Polish was spoken freely at the courts, both of Moscow and of Jassy.

V

From 1648 it became clear that Poland was threatened with catastrophe and disorder. A nation that had been strong and flourishing slipped into poverty and disorder, from which it never really recovered till the disaster of Partitions. The insurrection of the Ukrainian Cossacks under Bohdan Chmielnicki was only the first of a series of invasions. There followed the flooding of the country by the Swedes, and more wars with Muscovite Russia. The result was a dislocation and crippling of the normal life of town and country for half a century.¹ The country was

¹ Between 1600 and 1700 Poland had only fifteen years without a war, while Britain had seventy-five.

divided for a time between her invaders, and no government could function. Then came recovery, but this was followed by the long struggle with the Turks, associated with the name of King Jan Sobieski. Schools disappeared, palaces and libraries were plundered, scientific and philanthropic foundations ceased to exist. Neither study nor travel was possible. The University of Wilno was moved for ten years to Koenigsberg, the Academy in Zamosc stood idle, the University of Cracow barely vegetated. Only in Danzig, which then belonged to Poland, was learning able to continue to flourish. The names of Cluverius, Hevelius and others, all of them loyal Polish citizens, attest this.

Then came the two generations of the Saxon Kings—the first half of the eighteenth century, which was in effect a period of intellectual emptiness. Neither society, nor the church, nor the state itself, showed any trace of intellectual or spiritual vitality. On the other hand love of pleasure, a curious obscurantism in regard to scientific thought, and an unhappy fanaticism held sway. There was no place found for science at all, at the best there were attempts at erudition. Among these were the *Herbarz Polski* (the best Polish *Debrett*) of Niesiecki, which made use of much material from manuscripts; further, a compendium of all Polish legislation up to date, made by Father Konarski, and known as the *Volumina legum*, and a *Codex diplomaticus Poloniae*—the work of Dogiel.

But the darkest hours preceded the dawn. Before 1750 the first rays reached Poland of the French Enlightenment. It was the spirit of Locke and Montesquieu, to be followed by the influence of the Encyclopedists. Slowly but surely the response came. The pioneer of the movement was the reformer of the educational system of the country, the Piarist Father, Stanislaw Konarski; and he was ably seconded though in a curious way by a fellow-churchman, the Bibliophile, Bishop Joseph Zaluski. Already in 1740,

Konarski opened his School for the sons of the gentry in Warsaw, based on what was then called 'modern' pedagogy. Eight years later took place the formal opening of the Zaluski library; into which this tireless collector of books, manuscripts and documents, gathered treasures that would otherwise have perished. Between them, these two men transformed the atmosphere of the upper classes in Poland in a generation.

Konarski's *Collegium Nobilium* introduced two epoch-making changes into the schools of Eastern Europe (hitherto under Jesuit control): 1. the study of modern languages, and of physics, chemistry and geography, and 2. the education of boys to become useful citizens. This was the pedagogue-statesman's way of offering a remedy for the ills of his people, and history knows no better. As for Bishop Zaluski, he was, perhaps, too little interested in the saving of souls, but he had a great sense of the value of the written word in any form; as a witness to the past, as a monument of the national tradition. In almost ruthless fashion he gathered with his own hands countless books and pamphlets, some precious, some worthless; until his library, when carried off at the end of the century by the Russians, numbered 200,000 volumes and documents.¹

All progress made by the rest of Europe in the natural and exact sciences, exercised fruitful influence on Poland. Antoni Wisniewski, professor of physics in the *Collegium Nobilium*, gave a new life to the teaching of mathematics and astronomy, with the help of the latest instruments imported from abroad. In the Jesuit schools of the same time a special interest was taken in the study of physics. It is also notable as a proof of the loyalty of Polish scholars toward Copernicus, that Prince Jablonowski intervened successfully in Rome to get the works of that master scientist removed from the Index.

¹ Most of this was recovered by Poland, though with great difficulty, after the Treaty of Riga in 1921.

The last of the Polish Kings, Stanislaw Poniatowski, was a great patron of learning and research. He gave his personal backing to various scientific projects, for example a land survey of Poland on a large scale, an up-to-date geographical atlas, and special researches in chemistry and in the discovering of Poland's natural resources. Further, it was at the royal suggestion that Naruszewicz undertook a critical study of the mediaeval period of Polish history, assembling for his work in several volumes vast materials from almost every collection of archives in Europe. The result, though unfinished, was a work which has a value even to-day.

An institution, founded and favoured by the King, was the Cadet School, whose work was in part of a military nature, but which gave boys a general education, independent of clerical control. Here mathematics and mechanics (engineering) were given special attention. Most famous among its students was the later national hero, Tadeusz Kosciuszko, who served as an army engineer under Washington in the American War of Independence. All graduates of this school were soundly trained in practical sciences, and the general emphasis was on modern studies. Another of the Royal hobbies was the journal *Monitor* which carried the banner of progress and reform into every field of living. Much of its materials at the start were either 'lifted,' or adapted, from Addison's *Spectator*, and the general tone was that of the English prototype. The fact is that the whole generation from 1764-1794 was alive with interest in study, in modern philosophy and science; while the demand for books, whether original in Polish or translated from other languages, became widespread.

IV

In 1772 came the First Partition of Poland. The lopping-off of parts of the Commonwealth in the east, in the south

and the northwest, stirred the slumbering nation to action. Attention was aroused both to material and spiritual regeneration. When, in the very next year, the Jesuit Order was abolished by the Vatican, its vast properties in the way of schools and other institutions, together with the endowments, were taken over by the State. They were then entrusted to the care of a National Board of Education, to be used for the organization of a state system of schools. Twenty years of useful work followed, done by men with devotion and ability; and the results were notable. Buildings and equipment, libraries, programmes of study and text-books, were all adapted to the needs of modern pedagogy. The work of this Board was not easy, however, for the nobility in general were opposed to the place and time devoted to the exact sciences. Mathematics, for which first-class text-books were prepared, was denounced by teachers who had formerly been clergymen 'as pure mechanism and charlatanism based on vanity, which is only pleasing to half-baked sages.' The gentry in the provinces could not see any sense in studying zoology; objecting to a study in school of dogs, horses or doves, since 'the lads know them well enough from everyday life.' The result was that this subject had to be more or less eliminated. But opposition on the part of the gentry was gradually broken down by the Board, chiefly thanks to the fact that, as a part of its work, it succeeded in thoroughly overhauling and reforming the two universities of Cracow and Wilno. They were emancipated from clerical control and given the financial backing of the state. The older programmes of study were discarded and modern methods put into their place. The builder of the new system in Cracow was one of the ablest minds Poland has produced, a thorough-going student of social philosophy, a geographer and a pedagogue—Hugo Kollataj. Part of this plan was the selecting of promising men from among

the students, with a view to special training for professional work. One of the famous members of the staff was the mathematician Jan Sniadecki. He had been trained in France, and had visited Herschel in England; where he was much impressed by his contacts with scholars, in particular by the Scottish Philosophy of Common Sense. It was his lot to be singled out by Kosciuszko, and taken from his scientific work to aid in the national effort, ending in the insurrection of 1794. 'The need of the mother country is greater than that of astronomy,' was the expression used.

The younger professors, inspired by the spirit of secularism, had a steady conflict with their older colleagues, particularly in the defence of such studies as could not at once be seen to have practical value. This was the case with higher mathematics. Nevertheless, thanks to their learning, their energy and their diligenc, they succeeded in implanting in the youth an understanding of the sciences and an enthusiasm for them. It was in these year then, that having achieved well-ordered schools, Poles began at last seriously to study; and the results of this were seen in the next generation. At the time this advance was interrupted by the invasions of Russia and Prussia, with a view to wrecking the work done by the proclamation of the Constitution of the 3rd May. Then came the Second and Third Partitions, after the insurrection under Kosciuszko had drawn both students and university professors from their books to defend the national liberties.

I have mentioned the Constitution of 1791 and the struggle for independence, because some of the most ardent workers for national freedom were to be found among the men of learning. The Reformer of the University of Cracow, Father Kollataj had collected a group of wise men in Warsaw for discussion and study, called *Kuznia* (the Forge). The pamphlets written by these men, and articles appearing

in the press, did much both to further the principles of progress, and to make mock of reactionaries. A second, no less famous scientist though as yet working in a private capacity, was Stanislaw Staszic—a man who in a few years was to be the *spiritus movens* of a great Society for the Promotion of Learning. He had made his debut in 1785 with an epoch-making book under the title *Remarks on the Life and Work of John Zamoyski*. His analysis of the activities of the sixteenth-century statesman was in effect an ardent expression of patriotic sentiment, and moved the minds even of the doubters to stir themselves for the saving of the commonwealth. We thus see that attention to learning in no way hindered scholars from doing their duty to their country, but rather fitted them, both as citizens and as warriors, to perform their work better.

CHAPTER TWO

THE NINETEENTH CENTURY

‘ Even a great nation may fall ; but only a worthless one can perish ! ’

WITH this striking dictum, Stanislaw Staszic, the first representative of the Polish middle class to become a national leader, sought to stay the despair of his fellow-countrymen at the terrible fact of the Partitions. In very truth, there were good grounds for despair, even on the part of the stoutest spirits. Three neighbour Powers had conspired to dismember the Polish state ; and they now set about the destruction of its cultural life, its literature, its language, and even of the consciousness and the name of the Polish nation.

One should not forget that the regeneration of the national life, lasting for twenty years, of which we spoke last day, was possible only in the lands that had survived after the First Partition. The large provinces that were lost in 1772 had no experience of these reforms ; but were subjected by their conquerors to an immediate attempt at de-nationalization. Worst of all, for the time being, was the lot of the provinces taken by Austria—known thenceforth as Galicia. On the lines generally known as ‘ Josephinism,’ the Hapsburgs kept them for close on a century in a condition of material and spiritual poverty. They sought, though in vain, to throttle the spirit of the Polish nation. All schools were closed, including the Academy of Zamosc. An army of officials were sent in from abroad, whose fixed purpose was Germanization. With this end in view, a German-Latin university was founded in Lwow, in the place of the older Polish academy. The level of scientific work was low, for the main purpose was the training of officials

and priests, according to a well-prepared curriculum.

The same ruthless Germanization was practised by the Prussians in the provinces of north-west Poland. Frederic of Prussia had already seized Silesia, taking it from the Austrian empress, Maria Theresa, in 1741-42. He proceeded to forbid to all the children of the lower classes entry to the middle schools. This meant, of course, in the first instance the Poles, who at that time had neither an aristocracy nor a middle-class town population. Then came the occupation of West Prussia and of Warmia (Ermland) east of the Vistula, in 1772; on which followed the closing of all Polish schools except the elementary ones, and the creation of a Cadet School in Chelmno, with German as the language of instruction. When the Polish gentry, fearing denationalization, declined to send their sons there, the king ordered boys to be kidnapped from the poorer Cassubian gentry near the Baltic Sea, so that the classrooms might be filled.

Finally, with the Third Partition, in 1795, came the taking by Prussia of the Vistula area as far as Warsaw. In all this province, now known as Southern Prussia, the work done by the Polish Board of Education was torn down, and all the resources of cultural foundations were confiscated. The young men of the country were sent to the universities of Prussia, for which purpose endowments were taken from Polish educational funds. Only one sign of leniency was shown. A Polish Society for the Promotion of Learning was permitted in Warsaw. It was composed of historians and other scholars, and even Prussian generals belonged to it. At least one notable piece of work was achieved here, viz., the first Dictionary of the Polish language on modern lines—the creation of Samuel Linde. As we shall see, the *spiritus movens* of this group was the already mentioned Stanislaw Staszic.

The Russians also had decided on the assimilation of the

lands they had taken, but their own primitive level of civilization made this impossible. Realizing this fact, the Empress Catherine welcomed the refugee Jesuit Fathers, after their Order was abolished in 1772, and raised the Jesuit school in Polotsk to the status of an academy. The end in view was, of course, to bring about a schism in the Catholic church, and to use it for political ends. This academy, Russian in atmosphere, but Polish in speech and in methods of work, was one of the chief centres of learning in the Russian empire at that time.

Then followed the defeat of Kosciuszko, and the Third Partition. Many of the contents of Polish museums and archive collections were now carried off to Russia, including the whole of the Zaluski Library. But it is a fact that, for generations, no one was found to put these treasures in order, or to make use of them in the interests of Russian scientific work. Wilno University was from now on under Tsarist control, and Tsar Paul wanted to give it to the Polotsk Jesuits. When Rector Stroynowski protested against this plan, he was arrested and kept on bread and water. Only the murder of the Tsar saved the situation, and opened up for the University of Wilno an unexpected perspective of service.

I

Alexander I was anxious to win the friendship of the Poles in his struggle with Napoleon. He also realized the difficulties in the way of Russianizing them. Influenced by Prince Adam Czartoryski, he decided to organize a modern school system in his empire, more or less on the lines worked out in Poland by the Board of Education. The empire was divided into great districts, each one with its own university as the keystone of the structure. The lands taken from Poland were placed under the Curatorship of Czartoryski, with the university of Wilno as the focus-

point. Here then survived the only centre of Polish learning during those dark years. A daughter institution was established by Tadeusz Czacki, lawyer and historian, at Krzemieniec in Volhynia, in the form of a lycee, meant to serve especially the Ukrainian lands west of the Dnieper.

In Wilno itself the exact sciences stood highest : thanks largely to the brothers Sniadecki. We have already met the astronomer and mathematician, Jan, in Cracow ; and he had as a colleague the scarcely less eminent Poczobut. The other Sniadecki, Andrew, had been trained in Pavia and Edinburgh. His field was chemistry and medicine, and he was the author of a work translated both into German and French—*The Theory of Organic Substances*. The medical faculty as a whole was the pride of the university. In the field of the Humanities there were the classical philologist, Groddeck, who opened up the neo-humanistic movement in Poland ; and the historian Lelewel. It is to Wilno the Poles owe the terminology they still use in chemistry, zoology, physiology, mineralogy, and in medicine. New seminars, institutes and laboratories prospered in the spirit of modern science. Open discussions were organized on scientific questions, the *Wilno Daily* was founded—the first journal in Poland devoted exclusively to learning. The level of work done here became the envy of Russian observers. The poet Polezayev referred to it in his poem *Sasza* :

Ye homes of solid learning—Oxford, Wilno, Göttingen ;
Ye do not give degrees to fools, or knaves, or worthless men !

The atmosphere of Wilno was liberal through and through. The students themselves showed unusual capacities, notably in the ten years following the Congress of Vienna, the fourth Partition of Poland. In secret contact with youth organizations, which arose elsewhere in Central Europe in protest against the reactionary Holy Alliance, Wilno students formed secret societies under the names Philo-

mathes, and Philaretos—Friends of Learning and Friends of Virtue. Their general slogan was a triple one: country, learning, character! From the records of their meetings, which were preserved in great secrecy, we can study today the quality of their discussions as well as the range of their interests—economics, statistics, aesthetics, ethnography and, naturally, all the fields of history. It was in these circles that Adam Mickiewicz grew to manhood, and from them came the finest Polish Romantic poetry, not to mention a wealth of other literary work.

Hated by the authorities for its patriotism, this youth movement fell a victim of the rising reaction in Tsarist Russia. Both the staff and the students of the university were placed under police supervision. A sample of the kind of procedure was the expulsion of the philosophy professor Goluchowski, on the grounds that the visiting police agent found him using too many foreign terms in his lectures! In the sequel all the youth leaders were arrested in 1823, put in prison, condemned and banished to the depths of Russia.

II

The light of knowledge radiating in these years from Wilno had been reflected in the Duchy of Warsaw, created by Napoleon in 1807 from the provinces recovered from Prussia. A Polish Chamber of Education was at once formed in Warsaw, and such schools as existed in the country were again nationalized. A number of new ones were soon added, but constant military action made it impossible to carry out any larger plans until after the Congress of Vienna. Then came in 1816 the founding of the University of Warsaw. Though well endowed it could not hope at once to rival Wilno. There was no scientific tradition, and the ends in view were those of utility, rather than of abstract learning. The great need was the training of civil servants for the

newly constituted Congress Kingdom, of which the Tsar himself was King. State schools, however, were created to serve the special needs of mining, forestry, and agriculture—including veterinary science. A preparatory school in engineering was also founded. Curiously enough, the sons of the Polish gentry were not attracted to these institutions, and they were left chiefly to the uses of the, as yet, small middle class. There was also founded a Jewish Academy for Rabbis, which educated many able laymen, but not a single theologian. Orthodox Jewry, still reactionary, was not in favour of having its clergymen trained in a secular institution.

The initiative in founding the University of Warsaw, came from that greatest of Polish patriots, Stanislaw Staszic. We have already met him as a writer on public questions and an ardent apostle of science. While president of the Society for the Promotion of Learning in Warsaw, he had been the prime mover in all abstract studies; although another Pole, Stanislaw Potocki—a liberal like Staszic himself, had been appointed Head of the Board of Education. His chief service was the emphasis he always placed on the natural sciences. A pupil of Buffon in Paris, he then devoted years to a study of the geology of Poland, in particular of its mountains. The result was his notable book: *The Geology of the Carpathians*, published in 1815; with which went a geological map of Poland and the surrounding country. Staszic was the first to draw attention to the curious formations of the High Tatras. A special feature of his maps was the giving of the height above sea-level of all the peaks. These measurements, to the number of some 2,000, were made with instruments perfected by himself. They have been made the basis for the modern elevation maps of Poland, completed a century after Staszic prepared the way.

In the field of mineralogy an important contribution was

made by Borkowski in 1816 with his study of Vesuvius. Evidence of a high grade of knowledge in geography, folk-lore and primitive religion can be seen in the reports of travels from Asia and Africa by Jan Potocki as well as in the articles on Arabia published by Wacław Rzewuski in his journal *Mines d'Orient*. Similar studies were made by Alexander Sapieha of the Balkan countries. Polish investigators laid at this time the foundations of the general study of the Slavonic peoples as a group. Questions of habitat, of customs, of arts and crafts, and of folk-lore in general, were all explored. Special work was done on Slavonic traditions in legislation by two men—Rachowiecki and Maciejewski.

It goes without saying, however, that scholars were interested chiefly in their own country : in its past and in its significant characteristics. By all who were striving for national liberation, learning was thought of as a useful weapon. Study was encouraged, in order to rescue whatever was possible of the national heritage ; to keep its essential features, and to throw light on its past development. Naturally enough, historical studies claimed the chief place, directed not only to politics but also to cultural life (Kollataj) to legal institutions (Czacki), to literature (Bentkowski), and to religious problems (Ossolinski). Ethnography, folk songs, and national music attracted investigators, a fact which contributed greatly to the masterpieces of Chopin.

As yet there was little or no specialization in a particular field. The geographer, historian or geologist, was also a student of poetry or of some other field of literature. This mark of dilettantism did not always lower the plane of work done, but it did mean that the volume was small. As yet the energies of the scientific worker tended to be scattered, because of his desire to serve the cause of the nation as a whole.

III

And indeed there were troubles enough at hand. Reaction began in Russia with the coming of a new Tsar to the throne ; and the Poles were soon being deprived of the privileges assured them by the Treaty of Vienna. Learning in particular and the schools in general suffered, and a spirit of conspiracy prevailed among the students. This reached its climax in the insurrection of 1830-31, the failure of which meant an end not only to all political liberties, but to the work of cultural institutions as well. The universities in Wilno and Warsaw were closed, and the Lycee in Krzemieniec with them. The library and museum of the latter, and even the teachers, were moved to Kiev, where they served in the founding of a new Russian university. All the Polish schools existing in eight gouvernements of Russia were closed, and all learned societies and journals abolished. The two finest libraries in Warsaw were carried off to Moscow, as well as many treasures in books and other materials from Wilno.

Orders were given for the ruthless Russianization of all the borderlands. Even in the Congress Kingdom, where no Russians could be found, many schools were closed and the rank of others degraded. Educational funds were appropriated to build a Citadel-Fortress outside Warsaw, whose guns were trained on the city. All education was made subject to the Russian Ministry, which, in the days of Uvarov, meant a spirit of obscurantism and reaction. To complete the picture, the importing of scientific books from abroad was forbidden, and the younger generation were not allowed to go abroad to study. This condition of things lasted for nearly thirty years, resulting in a serious degeneration of cultural life in the whole of Central Poland.

In Galicia, meanwhile, the process of Germanization was being maintained. As a punishment for the national enthusiasm of the students of Lw6w in 1848, the university

was bombarded by Austrian artillery, and the library was burned. Thus were lost untold treasures in books and documents, brought together from recently abolished monasteries. The Free City of Cracow, existing since 1815, had been able to maintain for a generation the one university in which Polish was the language of instruction. It was now seized by the Austrians, and the university was subjected to the same policy of Germanization. Its more eminent teachers were removed from office.

In the north-western provinces of Poland, the Prussians followed after 1830 the example of Russia, depriving the Poles of the rights guaranteed them by the Congress of Vienna. Not a single Polish school was left in East or West Prussia, except for a training-college for teachers in Angerburg. This, however, was created for Germans only, in order to train them the better for their work in denationalizing the children of the Mazurian districts. Only after 1840, under a new king, and when relations with Russia had become less cordial, did things change for the better. Teaching institutions could now exist in Polish, and the pioneer educator, Dr. Karol Marcinkowski, could found in Poznan his Society for Assisting Students. In this way scholarships were made available for promising boys of Polish homes, so that they could get some measure of higher education. The Prussian government even established two chairs of Slavonic philology in the universities of Berlin and Breslau. Thus did the more liberal spirit prevailing in Prussia at that time, make it possible for the Poles to get an education, thanks to which Poznan came to possess a number of cultural institutions. Valuable periodicals, even though they were short-lived, made their appearance; and Poznan became for a time an important publishing centre of serious books of all kinds. A sample of this was the collected edition of the works of the exiled historian, Lelewel.

IV

We must now turn for a few moments to the Poles in Exile, gathered for the most part in France.

The cream of the Polish intelligentsia was compelled to leave the country in 1831, in order to escape the repressions of the Tsarist regime. It was to be expected that they would found various kinds of institutions abroad, to carry on their traditions. A Literary and Historical Society was formed in Paris in 1832, to which was added, seven years later, a London branch. In 1838 there was opened the still existing and now famous *Bibliothèque Polonaise* in Paris (*seized by the Germans in 1940*), and in the next year an Association of Polish Physicians was founded. An association for the Exact Sciences, which published in the course of time twelve volumes on higher mathematics, completed the roster.

The atmosphere of the emigrant groups, as must always be the case, was not happy. It was charged with political disagreements, and depressed by the fact of penury. In general, to give one's time to abstract studies was held by many to be a betrayal of patriotism. What is more, the Romanticism of those days, though rendering a great service to the cause, rated the things of the heart higher than those of the mind, and favoured mysticism rather than serious research. I should mention as representative of the scholars of that epoch the historian and geographer, Joachim Lelewel. He had already won eminence in the universities of Wilno and Warsaw, and had been a member of the National Council during the insurrection. Escaping to Paris, he took the lead in the Left Wing of the emigrant group, and contributed signally to the founding of the Polish Democratic Movement. For this he incurred the enmity of official France, and had to retire to Brussels. There he lived in poverty (giving his salary away to starving fellow-countrymen), and worked at his hobbies—above all Numis-

metics and Geography. One result was his *Geography of the Middle Ages*, published in French. He continued his work on the early history of Poland, and produced monographs which served to bring cheer to his fellow exiles. In particular his theories as to the functioning of the Commune in early Slavonic history were an encouragement to the still neglected common people.

Other able scientists, having no institutional support for their work, became scattered through the world, and published their findings in foreign tongues. The largest groups were to be found in the new Russian universities where Wilno men were given posts in classical philology (Kowalewski) and in Persian studies (Pietraszewski). Some of these, not liking their life in Russia, went further afield. Alexander Chodzko, an authority on the Orient, became a professor in the College de France. Ignace Domejko did geological researches in Chile, and later became rector of the university in Santiago. Paul Edmond Strzelecki went to Australia and worked on the geology of New South Wales and Tasmania. His researches appeared in book-form in London in 1895, and he was knighted by the Queen.

V

Learning at home in Poland was left entirely to the care of private families. The Raczyńskis founded the fine library and gallery in Poznań, the Ossolińskis an even more famous one in Lwów, while the Kraszyńskis did the same in Warsaw. The Zamoyskis brought together in Warsaw their books, documents and pictures, the Działyńskis created the famous gallery and library at Kornik, near Poznań; the Dzieduszyckis the Natural Science Museum in Lwów; the Lubomirskis their private gallery of paintings, and the Baworowskis their library. Every one of these collections held materials of historical and artistic value,

and was a buttress for the structure of national sentiment. Work of a different kind was done by the founding of the Scientific Societies—in Cracow in 1816, and in Poznan in 1857. Each of these became the recipient of gifts of useful materials for its growing collection of books and documents, and each began to publish monographs in various fields. In Cracow, with the help of the university, these monographs gave precedence to natural science and medicine; and more ardent spirits saw fit to attack their authors, just as Staszic had been attacked in Warsaw, for working at things which did not serve the cause of patriotism.

Then came a change for the better—about 1860. Taught by the Crimean War the Tsar lent an ear to the great advocate of Polish-Russian understanding—Marquis Wielopolski, and agreed to certain concessions in the field of education and learning. Of course, only in the area of the Congress Kingdom. In 1861 there arose a Polish Board of Education, with the Marquis in charge, which began to create a network of elementary and middle schools, and ventured a year later to restore the University in Warsaw, under the name *Szkola Glowna*. The chairs were filled chiefly by young men from the Prussian provinces, trained in German universities. Then came the rising of 1863-64, which was brutally crushed; and the wiping out of Polish education in every form. The *Szkola Glowna* existed for eight years only, but it succeeded in training a number of men of importance, and in inspiring others. These scholars made their mark in due course, both in the humanities and in the exact sciences: but, being excluded from the now Russianized university, they had to work as best they could in private libraries, accept positions in middle schools, or even serve as private tutors. Some of them earned their living in banks or in the service of the new railways. As for the border-lands of the Grand Duchy of Lithuania, the hangman Muraviev saw to it that no permission was given at all,

either for study, teaching or publication.

A similar regime was at once introduced in Prussia, in particular after the victory over France at Sedan. A thoroughgoing Germanization policy excluded Polish altogether from the state schools, and forbade the founding of private institutions of any kind. Even the agricultural school near Poznan was closed in 1877. During these years of the *Kulturkampf* the Poles had to concentrate all their energies on saving their land, their speech and their faith. For learning *per se* there was neither time nor money. Only thanks to an enlightened clergy did a scientific Society come into being in Torun in 1876, which began to publish source materials dealing with the past history of the north-west provinces.

One sees how this *via dolorosa* of Polish learning was entirely conditioned by the political situation. The three Empires conspired together in ever new repressions of Polish life; and only when they disagreed could a ray of hope appear. A sample of this came after the defeat of Austria by the Prussians, at Sadova. The Hapsburgs were now forced to seek the support of the non-German elements in the new Dual Monarchy. Austrian Poland was granted autonomy, and a School Council was formed in Lwow in 1867. At once the Polish language was restored in the Middle schools and the first steps taken to create an educational system for the masses.

Three years later the two universities of Cracow and Lwow got rid of their Germanizing masters, and began to develop in their own way. Before long the Ministry of Education in Vienna was compelled to admit the improved quality of their work. As for the Polish nation, it rejoiced at the advantages thus gained; not only for the cause of education as such, but also for abstract science. In a few years the ancient Jagellonian University was transformed, greatly increasing the number of its Chairs and of its insti-

tutes for scientific work. The 500th anniversary of its founding was the occasion of special celebrations in Cracow, in which delegations from all over the world were glad to take part.

The development in Lwow was somewhat slower. That university possessed neither the tradition nor the favourable environment of Cracow. Nevertheless, the energy of the staff and the growing numbers of students soon won for it a worthy place alongside the sister institution. This was seen clearly after the opening of the Medical Faculty, 1894. What is more, a new School of Engineering in Lwow added much to the importance of that provincial capital. This so-called *Politechnika* became known for its work in all branches of engineering, including mechanics, chemistry and architecture. Smaller but no less necessary schools were then added in agriculture and in veterinary science.

VI

By a joint effort of Cracow and Lwow scholars, there was founded in 1873 the Academy of Sciences in Cracow—the coping-stone of Polish learned institutions. Gathering people of eminence from every side, the Academy at once began its famous series of publications in different fields. Organized scientific work was now possible for the first time, and it was divided into three sections: Philology, History and Law, and Mathematics and Natural Science. This unequal emphasis was due in part to the fears of the influential people, who had won the good-will of the Emperor Franz Josef. They did not want too much attention to studies which might endanger the traditions of orthodox thinking in religion.

Apart from the Academy, there were founded special societies for Medical Studies (1867), for Research in Law (1868), and for Natural Science (1874). Each of these had its own *Journal*; and their example was followed by

the historians in founding the *Historical Quarterly*, and by students of the history of literature in founding the review, *Literary Memoirs*. The seat of most of these organizations was the busy and energetic provincial capital, Lwow; but the majority of congresses were held in Cracow, where the atmosphere was calmer, and the tradition more favourable to serious study. On this account the Czartoryski family brought their magnificent library and museum back from Paris, whither it had been carried off in secret in 1832.

The possession of two universities of their own permitted the Poles to bring their scholars together for consultation, and to train the rising generation in proper methods of research; thus putting an end to the amateurish and haphazard practices of the past. The urge was strong, and the endowments provided by the Austrian government were seen to be inadequate. Further, the poverty of the province of Galicia and the long depression of the 'seventies and the 'eighties made the task harder. Nevertheless, much was done by private benefactors to provide scholarships for needy research students, and to support with gifts the rising Academy. As a result, not only the sons of the aristocracy but also young men from the towns found the means for study; and after 1880 even boys of peasant stock were making themselves a place in this new occupation.

The results of all this soon became known in the outside world. True, the attachment of the Poles to their mother-tongue, which no one outside the country took the trouble to learn, made much of their work inaccessible still to strangers. For a time only philological studies—written in Latin—were known abroad. Apart from this, resumes of Polish treaties appeared from time to time in foreign journals, chiefly in German. In these cases the reader was often not aware that the author was a Pole, and the credit for work done went to others. Again, as long as

there was no independent Poland, international congresses did not like to admit Polish delegates on an equality with others. Only with difficulty was this concession gained in the International Congress of Historians. Here at least, all competent people knew of the rich heritage of the Polish nation, and of the way it had refused to yield up its individuality in the interest of others.

Under German and Russian rule no liberty of action was possible at all, and the hopes of scientific work were reduced to a minimum. Individuals emigrated, and were lost in the world of Russia or Germany, or even farther away. Having German names two Poles were given chairs of philology in the Reich—Nehring in Breslau, and Bruckner in Berlin; but they had to send their Polish books to be printed in Cracow, Lwow or Warsaw. Some fields of Russian science were alive with Polish members, but little was heard of their origin. Polish exiles in Siberia contributed greatly to the growing knowledge of that vast country; among them the ornithologist Taczanowski, the zoologist Dybowski, the geologist Bogdanowicz, the geophysicists Czekanowski and Czerski, and the anthropologist Talko-Hryniewicz. Linguistic studies among the Siberian and Mongolian peoples were carried on by Pilsudski, Kotwicz and others. In Russia proper, Poles became famous: the anatomist Cienkowski, a pioneer in the study of the cell and the protoplasm; the comparative philologist, Baudoin de Courtenay; the classical scholar, Tadeusz Zielinski, and the philosopher of law, Petrazycki.

So too in western Europe. The chemist Nencki taught first in Berne and only then in St. Petersburg. He is known for studies on the essential role played by the liver in the metabolism of the body, for his researches in the composition and metabolism of proteins, and for the discovery made together with Marchlewski, that a close chemical relation exists between haemoglobin, the red pigment of

human and animal blood, and chlorophyll, the green colouring matter of leaves. The distinguished chemist. J. W. Bruhl had a chair in Heidelberg, while in Berlin one could find the investigator of galvano-therapeutics, Robert Remak, and the outstanding figure in aeronautics, Arthur Berson. Edward Strasburger worked in Bonn; pioneer in the cytology of plants, and famous for his work on the vegetable cell in particular on the division of its nucleus. The famous surgeons, Mikulicz-Radecki and Rokitvanski, were both Poles.

In France Polish names were rarer, most of them sons of emigres, who had become naturalized. Among these were Zaborowski, an authority on pre-history, Motylinski, a specialist in Arabic dialects, Przyluski—expert in the history of Buddhism and Babinski, the neurologist. Best known to the world was Marja Sklodowska, who came to Paris from Warsaw as a young woman, married Pierre Curie, and became with him the co-discoverer of radium. Two Poles, Arctowski and Dobrowolski, joined polar expeditions from Belgium, and made themselves names as meteorologists. In the same way, Jan Czekanowski, as a member of a German expedition to Africa, laid the foundations for expert anthropological knowledge.

VII

Meantime in Warsaw itself, something of signal importance was achieved, in the face of the severest Russian despotism; a proof of the stoutness of Polish courage, and of skill in finding ways of circumventing the oppressor. Under a veiled name, a kind of Scientific Association was formed, which was soon able to subsidize laboratory research, to assist in the salvaging of archive materials, and even in the publishing of serious monographs. Launched in 1881, it was known as the Mianowski Foundation, in honour of the former Wilno scientist, who had then become Rector

of the Szkola Glowna in Warsaw. A group of one-time professors secured from the authorities permission to collect funds for the printing of treatises, so innocent that even the Russian police could find nothing suspicious about them. On the one hand, the generosity of Poles scattered all over Russia from the Baltic to the Caspian sea, on the other able management by the trustees in Warsaw, made possible vitally needed support for such studies as were possible under Russian rule, and on a notable scale.

Nations that are at liberty to seek for knowledge as they will, and to enrich it with the help of well-equipped libraries and laboratories, can hardly appreciate the significance of an effort in the field of the popularization of knowledge made by the Mianowski Foundation, in the form of a row of stout volumes under the title *Helps for Self-learners*. The editorial work for this encyclopedic publication was undertaken by the still surviving veteran Warsaw engineer, Stanislaw Michalski—*bene meritus patriae*. In it could be found the elements of scientific knowledge in many fields and bibliographical data for guidance in further work. For the eager reading public, these volumes took the place of seminars and institutes, and became the starting-point from which not a few people went on later to become famous. In keeping with the prevailing positivist tendency, the emphasis was laid on mathematics and the natural sciences. This realist reaction to the earlier romantic movement had established itself in Warsaw after 1870 ; and met the growing needs of this new age—of the railway, the workshop and the factory. For the positivist training in science and mechanics was the surest way to a better world.

An example of the new realism now appeared in Cracow. It was to be expected that the study and writing of history was bound to take a foremost place in the minds of educated Poles. There were rich materials at hand, both in the form of original sources and of attempted interpretations. Even

the fact, that much-needed documents were shut up in the archives of Berlin and St. Petersburg, to which Poles were forbidden entry, made no essential difference. The more their country's existence was threatened, the more men and women cherished the history of the past, but chiefly the past of their own nation. There were many historical works of an apologetic nature, many which defended the Polish cause under all circumstances; but it is equally true that no people has been more ruthless in its appraisals of its own past than my own. In times of depression we did indeed think of our nation as 'a chosen people.' but at the same time we have not flinched from analysing our own blunders. An event of prime importance in this regard was the appearance in 1877 of a *History of Poland* by the Cracow Professor, Michael Bobrzynski. He became known later as the leader of the Conservative Party in politics, called the Stanczyks, and as Statthalter for Galicia and Minister in Vienna.

Bobrzynski saw the reasons for the fall of Poland not so much in the doings of her predatory neighbours, but rather in the lack of proper organization and consolidation of the Polish state, in the absence of firm authority, and in the excessive individualism—amounting to anarchy—of the ruling aristocracy. The Cracow School of Historians was conservative, by contrast with the older republican tradition of Lelewel. To them belong the majority of scholars in Cracow and Lwow—Szujski, Tarnowski, Helcel, Wojciechowski, Smolka and Ulanowski. They had also the moral support of the Academy of Sciences. In protest against this view there arose a notable group of Warsaw investigators—Korzon, Smolenski and Askenazy; who brought into relief the unquestioned forces that were evident in the national regeneration of the late eighteenth century. They also pointed to the faithlessness of the three predatory

powers, against which without allies the Polish Kingdom was helpless.

This controversy gave great stimulus to historical studies of every kind, and in their work scholars were enormously helped by the appearance of volume after volume of Karol-Estreicher's *Bibliografia Polska*. This unrivalled publication set about recording and describing every printed work published in Poland, up to the year 1800. Nineteenth-century publications were added as an appendix, as a simple list of titles. Scarcely less useful was a companion work by Professor Finkel of Lwow, *A Bibliography of Polish History*. This included every scrap of source material or historical writing in the Polish language up to the year 1815. Meantime work had gone on in other fields. Oscar Kolberg was spending his life wandering about Polish lands, collecting materials for a huge publication *The Polish People*—a mine of materials on folk-lore and kindred subjects. A number of able men were devoting themselves to language study—Brückner, Lucjan Malinowski, Los and Rozwadowski. The founder of scientific studies in regard to the history of art and architecture in Poland was Sokolowski. Polish literature got through attention at the hands of notable teachers like Malecki, Tarnowski, Pilat, Chmielowski, Brückner and Chrzanowski. The most eminent classical philologists were Morawski, Zielinski, and Sternbach. The geography of Poland and neighbouring lands was given special attention by Zejszner, Nalkowski, and Rehman. A large group of investigators devoted their attention to geological studies, the practical uses of which were evident enough in the production of coal and oil. Palaeontology and the study of rock formations were not forgotten, nor were the fields of fauna and flora, or the wider field of anthropology in general.

A word should be added about the special progress made in the biological sciences. Apart from names already

mentioned, that of Emil Godlewski is widely known for his studies in the physiology of plants. He specialized in the conditions under which plants assimilate carbon in various aspects of their breathing, in the decomposition and formation of proteins, and in the life processes of nitrifying bacteria. His contemporary, the botanist Raciborski, published a study of the fungus of Java in 1900, contributing to our knowledge of oxidising enzymes, and in particular to the botany of the petrified flora found in coal seams.

In the field of medicine the name of Ludwig Teichman should be mentioned, who discovered the haemin crystals in Cracow in 1853, thus giving the starting-point for all later studies on the chemical structure of the blood pigment. Pieniazek and Jurasz made a reputation as throat specialists, Cieszynski for his studies of the oral cavity in general. Leon Marchlewski, also of Cracow, had received his early training in Manchester under Schunck; and he went on to study the pigments of blood and leaves until he established the relation between haemoglobin and chlorophyll.

Sound studies in the field of fermentation were published by Wroblewski and Emil Godlewski. While the English workers Oliver and Schaeffer were engaged with the discovery of the hormone Adrenalin, two Poles Cybulski and Szymanowicz were engaged in precisely the same task and with the same result. It was in another laboratory in Cracow that two Polish physicists, Olszewski and Zygmunt Wroblewski, completed their now famous experiments which led to the discovery of liquid air.

No enumeration of names can afford a true picture of the extent or the character of the work done in any of these fields. Where one man achieved an international reputation, a score or even a hundred others made their respective contributions; individuals, as is ever the case, contributing their share to corporate attainment. Not infrequently the surmise, or the discovery made by a man who remained

nameless and unknown, made possible the gaining of fame by a colleague, or a successor. Enough that the end was achieved, and that Poles added something to the scientific heritage.

The nineteenth century was one of unheard-of progress in all branches of science, an age of advance in university life and work, surpassing that of all former centuries put together. For Poland, unfortunately, it was a time of political subjection and of grave restrictions on all cultural activities. Nevertheless the story told above is evidence of our courage, and of our industry as a nation ; permitting Poles to feel that they were not wholly idle in respect of things so intimately bound up with the march of European civilization.

CHAPTER THREE

OUR OWN TIMES

THE opening years of the twentieth century were a time of tribulation for Polish learning. Under Prussian rule, the policy of Germanization was pushed to the extreme limit. A sample of this was the fact that in the city of Poznan no public lecture was permitted in Polish, and private teaching of any kind was severely punished. German pedagogy was praised for its liberalism, but its chief, Wilhelm Rein, gave his officials approval to the forbidding of all teaching of Poles in their mother tongue. True, a sort of academy called a *Hochschule* was created in Poznan; but its lectures were for Germans only, and not a single member of the staff was a scholar of distinction. The Raczyński library, though founded by Poles and entrusted to the care of the city, was taken over by the state and placed in charge of Prussian officials.

In Russian Poland the war on everything Polish in the field of study and research was carried on by all possible means. The university of Warsaw was the centre of Russianizing activities. When patriotic industrialists sought permission to create a School of Engineering for the training of technical and mechanical experts, they raised the sum of one million roubles; and presented it to Tsar Nicholas II, with the suggestion that it be used for the founding of such an institution. They hoped that the Polish language would be permitted in its halls, but in vain. The great Warsaw *Politechnika* came into being, but as a purely Russian institution. Like the University it was a centre of denationalization tendencies.

The Polish youth, compelled to study in these halls, where everything dear to them was made mock of and subjected

to humiliation, took part with enthusiasm in the revolution of 1905. They openly deserted both the university and the school of engineering, as well as all Russian middle schools. In keeping with the general trend towards a more liberal regime, the Russian authorities then permitted the opening of Polish middle schools—of course of a private character. From now on, Polish families sent their boys and girls only to these schools, and a general boycott resulted of every Russian institution in the country. For higher studies the whole younger generation elected to go abroad—either to Galicia, or to the heart of Russia, or (and in large numbers) to Switzerland, France, Belgium and the German universities.

The shadow of an impending European war was over them, however, and everywhere they devoted time and strength to various kinds of political activity, which should normally have been given to study. This situation gave rise to a comparison of national characteristics, which has both truth and humour in it:

Where you get one Englishman there is a muddle,
„ two Englishmen there is a Sport Club,
„ three Englishmen you have an empire.

Where you get one Russian, he is a genius,
„ two Russians, there is chaos,
„ three Russians, there is a revolution.

Where you get one Pole, you have Poetry,
„ two Poles, you have Prose,
„ three Poles, you have a revolutionary
Conspiracy.

Even the outbreak of the Great War, and the need felt by the Russians for winning the loyal support of the Poles, did not incline them to concessions in the field of education in Warsaw. Until the Germans occupied the city on August 1915, everything went on as before. Then came, in a single day, the flight of both teachers and students; and this forty-

six years old institution, together with the *Politechnika*, passed into oblivion, leaving no trace behind it. The libraries and museums were mostly carried off to Russia, and many have never been recovered. In the same general retreat of the Russian army, other libraries of Polish books and materials, including many precious documents, were also removed—from Lublin, Wilno, Luck, etc. These became lost to Poland forever.

I

In view of this state of things in the western and the central provinces, one need not be surprised at the way in which the universities of Cracow and Lwow, under Austrian rule, drew throngs of students from all parts of the country. Those were the days of the Young Poland Movement in literature (Kasprowicz, Wyspianski, Przybyszewski, Tetmajer) and in the arts (Stanislawski, Wyczolkowski, Malczewski), and Cracow was in a ferment of new ideas. There can be little doubt that all this contributed greatly to the forming of the Polish Legions, which played a worthy part in fighting with the Austrian army against Tsarist Russia. It was natural then, that the prospect in the autumn of 1914 of Southern Poland's being over-run and annexed by the Russians, filled many with grave concern.

Conditions during the four years of the Great War, not to mention two succeeding years of the struggle with the Bolsheviks, meant an almost complete stagnation of learning. With this went the loss of precious lives from among both teachers and students. Nevertheless, an unexpected opportunity came in Warsaw in the autumn of 1915. Though unable to conciliate the Poles in any political way, the Germans wished to show some concessions in the field of culture; and agreed to the opening of the university and the school of engineering as Polish institutions. They also permitted the creation of an elementary school system,

and the opening of new middle schools. The response of the Poles, though beggared by war conditions, was immediate. It was impossible to find enough men to occupy the chairs of the two higher institutions, and a number of people were engaged on a provisional basis. Work was already under way, when the collapse of Tsarist Russia and the resulting chaos, brought relief. Polish scholars scattered through the Empire at once sought to return home. They left behind all their books and documents, some of them made the journey home on foot—but they *did* get back. Then and only then did we realize how many such Poles there were ; and their arrival saved the situation in Warsaw. What is more, the School of Mines, in Cracow, founded soon after the achieving of independence, was manned almost exclusively by Polish mining and technical experts, escaped from Bolshevik Russia. Among these was an eminent metallurgist of Ukrainian nationality, who had made his escape from Kiev.

A similar thing occurred in a quite different field. There existed in St. Petersburg a theological seminary for the training of Roman Catholic priests. Its teachers were now compelled to flee abroad, and the majority made Poland their home. Thanks to their energies there was founded the Catholic University of Lublin, on the lines of Louvain or Fribourg. From Western Europe also, and even from the New World, exiled scholars began to come back, some younger and some older. Among them was the world-famous expert in waterdynamics, the hydraulic engineer, Gabriel Narutowicz, of the School of Engineering in Zurich. He was soon elected as the first president of the Republic of Poland,

As each region of the commonwealth won its emancipation, the desire arose to found its own centre of higher education. Prussian Poland at once set about founding

the University of Poznan. In the same way, with the withdrawal of the Bolshevik armies eastward in 1919, Wilno restored its famous university in the same buildings as were used a century ago. As for the capital city of Warsaw, special schools were soon organized in the fields of Rural Economy, and of Business Administration. Further, a private, so-called 'Free University' was founded to provide courses of study for various types of men and women, who could not enrol elsewhere as regular students. Even more specialized fields were served by new institutes of geology, meteorology, mineralogy, oriental languages, etc. The needs of the Non-Catholic populations of Poland were met by the addition in the university of Warsaw of Faculties of Protestant and Orthodox theology, destined to train the future clergy of these two churches.

II

This remarkable expansion of university life and work was bound to initiate a crisis. All the new institutions of learning were flooded with students, many of them ill-prepared for higher studies, and unlikely to do serious work under such 'mass' conditions. What is more, the majority were without sufficient means; and needed to complete their studies as quickly as possible, in order to earn a living. The universities were forced to reckon with these facts; as well as—from another side—with an obvious need of the newly restored republic. Civil servants of every rank were in great demand, not to mention competent people for the organization of the professions, and of the social order as such. In spite of themselves, then, higher institutions of learning tended to become factories for the production of a certificated *intelligentsia* of public servants.

There was, however, another anxiety. This influx of students moved those in authority to appoint men and women to university posts, who had not been properly

trained, and with unfortunate results. The prestige of learning and of men of learning in Poland before 1914 had been immense. They had been few in number, their workshops had been won by toil and sacrifice, and there was severe selection both in regard to teaching staff and to students. Now, the halo surrounding the university institutions became somewhat dimmed ; there were too many of them ! The professors themselves were the first to express dissatisfaction. The burden of teaching laid on them consumed time and strength needed for research and writing. Certain more impatient ones declared, on the other hand, that the continuation of the older type of institution was an anachronism. They expressed the hope that the higher institutions should devote themselves as swiftly as possible to assisting national production and the improvement of the general well-being. They would thus nurture the atmosphere of energy and inventiveness, and satisfy the many demands of everyday living.

In view of these objections the slogan arose : *separate research from university studies* ! Let your higher institutions be, first and foremost, schools, giving themselves to teaching ; and let them be manned only by good pedagogues ! On the other hand, let the more eminent scientists be freed from the burden of teaching, and from the training of the youth ; and be brought together in separate institutes, where with a few helpers they may give themselves solely to research work ! A beginning was even made with the founding of such centres, and money was provided to finance them. But the results were not impressive, and further discussions led to a return to the existing order. The majority of professors did not wish to leave their teaching posts. They preferred the natural method of selection of more promising younger helpers, effected by the regular work of the seminar and the laboratory. They did not wish to be shut up in special institu

of helpers, where a dull routine would follow, and the stream of younger candidates for research would be dried up.

A notable though undesired feature of the new situation in Poland was the disappearance of private benefactions of higher learning, and its almost entire dependence on state support. The fundamental reason for that was, of course, the indescribable poverty of the nation, due to war. The 'steam-roller' of foreign armies had moved back and forth repeatedly over Polish lands ; coming on top of the pre-war policy of exploitation carried on by the three Empires, none of which ever felt sure of permanent possession. The worst feature of all was the subsequent inflation, which destroyed the value of all endowments, and even of subsidies from the state.

Even this disaster the Polish nation succeeded in surviving. With every temporary improvement in the economic situation, new forms of support were found for scientific work and for publications. A touching example of this was a legacy, left to the University of Cracow and earmarked for the publication of historical materials connected with it, by a Lithuanian named Gedemin, chef in a restaurant who had made money in the U.S.A. The Academy of Sciences in particular was the recipient of special bounties. It had been named after the city of Cracow, though in its range of interests and membership it included all of Poland. Now it was recognized by the Government as the *Polish Academy*, and permitted to remain in Cracow. The chief reason for this last decision was the conviction of the Council that the atmosphere of a provincial city, with its long tradition of learning, was a better place for such an institution than the distracted and noisy surrounding of a state capital.

The Academy possessed an endowment in property of its own—interests from funds, and rents from farms and buildings. These were now secured by a statute, approved

by the Diet, which granted it complete self-government. The President of the Republic became its Patron. Thanks to these arrangements, it could remain apart from all political or other controversies; and pursue its proper course, dictated exclusively by the demands of science.

A fourth section, that of medicine, was now added to the three existing ones; and the balance was thus improved between the Humanities and the Exact Sciences. More attention than ever was now paid to publications, and scores of volumes appeared every year, dealing with every field of knowledge. Of special note were a Historical Atlas of Polish lands, an Atlas of Linguistics, and another of Polish Flora; also a Dictionary of National Biography, in which for the first time Polish names from every field of thought and action, during ten centuries, could find their place. Four volumes had appeared carrying the work as far as the letter D, and the fifth was ready for publication, when the present war interrupted everything.

Among the collections belonging to the Academy should be named the Physiographical Museum, containing the recently excavated pre-historic rhinoceros, perfectly preserved in the oil-bearing strata of the Carpathians; an Archaeological Museum of Polish lands; and a rich collection of drawings, of which the chief attraction were the tens of thousands of drawings recently discovered, the property of the last king of Poland. A new museum has recently been formed by the University of Cracow, dealing with the history of science. This included instruments employed in past centuries for scientific work; in particular those used by the astronomers of the fifteenth century, and left by them to their Alma Mater.

III

A gratifying feature of the new conditions in Poland was the fact that much was done for learning quite apart from

the universities and their institutes. I recall here the Scientific Societies of Lwow, Poznan and Warsaw, mentioned above; to which were now added similar ones in Wilno and Lublin. Members of these groups took advantage of opportunities for work afforded by libraries and archives, which had been formed in various cities from disbanded private collections. In Pomerania there arose the Copernicus Library, alongside the Society in Torun. In Gdynia the Baltic Institute flourished, which published a Quarterly and valuable regional studies, in Polish and in English. Danzig had its Polish Society for the Promotion of Science and Art, from which came the splendid *Danzig Year Book*. In Polish Silesia was formed a scientific society; and there came into being a magnificent Silesian Museum, particularly strong in folk-arts and crafts of all kinds. There was also a valuable library, of both German and Polish books. Finally, the Silesian Institute promoted the study of provincial history, and the publication of smaller and larger monographs.

Through the Silesian Institute Polish learning has made a signal contribution to the proper study of Silesian history. This had been virtually left to Germans in the past, and was almost entirely coloured by political leanings. Facts and sources were systematically ignored, if they did not support the favourite thesis that Silesia has always been German. It was therefore a blow to German historical writing when there appeared in the 'thirties a comprehensive History of Silesia, published by the Polish Academy of Science. In this three-volume work, a group of specialists, chiefly from Cracow, brought to light from its sources the history of the Polish tradition in Silesia, which had been buried by German 'scholarship.' There is little doubt that the publication of this work, to which the Germans have nothing by way of an answer, was one of the grounds for the brutal arrest and deportation of the staff of the

University of Cracow in November, 1939.

Scientific Societies were also formed in Plock on the Vistula (where also two museums and two libraries came into being), in Lodz and in Przemysl. In the Eastern Borderlands the Scientific Society of Volhynia was very active in recent years, publishing its *Volhynian Year Book*. This keen desire of the regional population in every corner of Poland to make historical and physical studies of their own province has been almost universal. It is worthy of note that the people of the county of Zywiec in South-western Poland, who have recently been deported *en masse* by the Germans—probably the poorest rural area in the country, had their own finely edited journal of studies, *Gronie*.

In this atmosphere of vigour and liberty of scientific research, the efforts of the National Minorities in Poland also shared. The first place among them was held by the Ukrainians, whose Shevchenko Scientific Society in Lwow stood out in forefront. It was founded in the nineteenth century with Polish assistance and good-will. It published several series of scientific works, possessed its own large library, and grouped together in a sort of Academy the majority of Ukrainian scholars. It received a monthly subsidy from the Polish government, on the same scale as its fellow Polish societies; and, apart from that, it possessed a special source of income, in that all state school textbooks in the Ukrainian language were issued in its press. Apart from this, in order to profit from the energies of Ukrainians living in Warsaw and in the northern parts of Poland, there was founded by public funds an Ukrainian Institute in Warsaw in 1930, which became known for its publications and their high quality.¹ The ill-feeling that remained from the bitter struggle with the Ukrainians in

¹ This Institute the Germans have now 'renewed,' and told the world about it as though it were an exceptional novelty, and done out of good-will to the 'down-trodden' Ukrainians.

East Galicia in the winter of 1918-1919, made it impossible for the Polish government to create an Ukrainian University in Lwow. The proposal to open one in Stanislawow or Tarnopol—cities where quarrels between the hotheaded groups of youth of two nationalities would not be so likely, was not accepted by the leaders of the Ukrainian parties ; although this plan was never quite given up. For the time being the universities in Warsaw and Cracow provided Ukrainian scholars with five chairs in their history, their literature, and their language.

The German Minority in Poland were free to develop their own scientific society such as the *Wissenschaftliche Gesellschaft in Polen* and the *Naturwissenschaftlicher Verein* in Poznan ; not to mention societies and libraries in Katowice and elsewhere. A sample of the kind of liberty enjoyed by the Germans in Poland is the fact that in the year 1934 there appeared in Poznan the famous book of Kurt Lueck *German Constructive Forces in Polish Culture* ; which in a naive and provocative manner set about proving that all phases of Polish civilization during the ages can be traced to German sources. This book is being used to-day by the occupying authorities to bolster up their argument that every distinguished Pole was in reality a German by origin !

Turning to the Jews, one should mention that for centuries there have flourished in Poland the famous Talmudic schools (Yeshibots). Their number was nearly 100, and the Yeshibot in Lublin was the recipient of a government subsidy. Intellectual workers in the field of Judaic (Yiddish) studies were educated by the Jewish Institute, with its departments of literature, language, economics and psychology, as well as the special Institute for Hebrew Studies in Warsaw. This had two sections, one for theology and one for pedagogy. It served the students of the University of Warsaw, who were seeking higher education for posts as Rabbis, as well as for teaching positions in Judaistic

subjects in the middle schools. The Rector of this Institute was the eminent Assyriologist, the chief Rabbi, Moses Schorr, honorary professor of the University of Warsaw, and Member of the Polish Academy of Science.

The Lithuanian Scientific Society in Wilno became in 1938 the object of unpleasant attentions on the part of the Polish local authorities, since the Lithuanian government never permitted the founding of a Polish Scientific Society in Kaunas. Polish scholars never sympathized with this attitude of their local authorities, and continued their friendly relations with Lithuanian scholars and scientists.

IV

Apart from regional and minority scientific societies a number of associations of a general nature were formed, each devoted to its own field of science : chemistry, physics, geology, biology, mathematics, geography, archaeology, history of art, etc., etc. Each of these held its own Congress every two or three years, and published its own journal. I will give one sample only. At the 8th Congress of Polish physicists in Lwow in 1936, there were present 211 members ; and the number of papers presented was 103.

These same years saw a rapid growth of libraries, of archives and of museums. Archival collections, composed of precious materials from the Middle Ages (Warsaw alone had five large collections), represented a treasure not only for Poland itself, but also for the neighbouring countries. Materials and documents, which had been scattered in private libraries or in various city or ecclesiastical institutions, now began to be brought together and properly arranged by experts.

The promises made by the Russians for the returning of archives carried off from Poland at various times, including the year 1915, were never kept ; on the other hand, thanks

to the Treaty of Riga the recovery of many thousands of manuscripts and a like number of ancient texts was achieved, many of them taken in 1795 from the Żaluski library, and others later from the Warsaw Scientific Society.

Of the collections which came back of their own free-will from abroad, the most valuable was that preserved in the Polish Rapperswyl Museum near Zurich. This was of interest most of all because it contained so many manuscript memoirs from the years of the struggle for liberation.¹ An idea can be gained of the extent to which the treasures of the past were collected and put in order during two decades of independence in Poland, can be had from this fact that the number of organized art museums reached 120. This network extended to every corner of the country, and was proof of a high level of artistic interest and creative talent.

I have spoken of Poland's recovering of books and materials carried off by invaders. There was one example of materials lost, which Poland did not recover; but this cannot be said to constitute a loss. I refer to the case of the greatest of Polish humanists of the last generation, the professor of Slavonic Philology in Berlin, Alexander Bruckner. When Poland regained her independence, he was already professor *emeritus*, and being in poor health he did not feel fit to change his place of residence. Nevertheless, the restoration of Poland as a free country in Europe influenced and moved him so deeply, that in his latest years (he lived to the age of eighty-four), he produced notable works of a comprehensive nature: such as an *Etymological Dictionary* of the Polish language, a *History of Polish Culture*, and an *Encyclopedia of Ancient Poland*, apart altogether from a large number of special papers, and editions of ancient texts. He lived in a suburb of

¹ Unfortunately this whole collection was destroyed by the German artillery during the siege of Warsaw in September 1939.

Berlin, but he yearned for Poland ; and his thinking and his work were concerned with Poland alone. He died in May 1939, thus escaping the catastrophe that followed in September.

Bruckner was a pupil of the founder of Slavonic Philology, Miklosich ; but he surpassed his master—as he did all his contemporaries—in the breadth of his knowledge. He was a linguist, a historian of literature—Polish, Russian, Ukrainian, Czech ; a historian of culture ; an expert in mythology—not only Slavonic but also Lithuanian and Prussian ; and finally he was at home in the history of religion and in ethnology. At the age of seventy, he had already more than 1,000 books, pamphlets and papers to his credit.

The sudden expansion of scientific studies compelled the Poles to review afresh the problems of organization and of methodology. With this end in view they established an annual known as *Polish Learning*, of which nearly thirty volumes have already appeared. As editor-in-Chief, there appeared our old acquaintance, Stanislaw Michalski, mentioned last day as the founder of the ‘ Helps for Self-learners.’ Some of the problems dealt with in this annual were also discussed, with the help of foreign specialists, in another Year Book called *Organon*, which appeared in English and in French.

The same Michalski took the initiative in the creation of a National Cultural Fund, of which he became director. He convinced the authorities that the work of scientific societies and journals, as well as the training of younger research students, called for direct public assistance. In spite of the serious economic depression, he was able to secure for this Fund the sum of about one million zlotys yearly, with which he then assisted about 100 societies and some sixty journals. Apart from this, about 800 students were given grants during the years to help them in

special studies, whether at home or abroad. He selected these young men and women from all branches of science, and sent them chiefly to Great Britain and the U.S.A. His wish was to free the future of Polish learning from its traditional dependence on German science, the worth of which had sadly deteriorated. Above all, he wanted these people to get a first-hand acquaintance with the Anglo-Saxon mind and method. Throughout, Poles acknowledge with gratitude the constant benefaction of the Rockefeller Foundation, notably in the fields of medicine, natural science and social studies.

Polish scientists have welcomed with gladness all these contacts with the outside world. In particular they have united with their fellow Slavs in a varied series of congresses, dealing with peculiarly Slavonic issues—languages, literature, geography and ethnology, above all history. There have also taken place in Poland a number of world congresses history in 1933, geography in 1935, surgery, etc., etc. In these many scholars from distant lands have taken part, some of them contributing to Polish journals. As a consequence, Polish learning in its modern form, though still young, has become known abroad, and its representatives have brought the fruitage of their labours on to the arena of world discussion.

Scientific workers have also come to enjoy the confidence of their own nation. The state and the army have profited in many ways from their researches. They have not been able to exercise great influence on the course of politics, though, at times, university men have been called to high office in the state. With the growing restriction of the parliamentary system, and an experiment in semi-dictatorship, there was less understanding shown for learning and a restriction of the prevailing autonomy of the universities; and some teachers, who were removed from their chairs (1938). The universities defended themselves with great

energy and dignity, and found such strong support from public opinion, that the majority of the objectionable regulations were withdrawn.

V

I shall now speak briefly of specialized fields of scientific work, confining myself to a few characteristic subjects and workers. The enthusiasm for technical studies among the youth of the country has been striking; in particular the interest in architecture and aeronautics. Here the Warsaw School of Engineering led the way: notably the expert in aerodynamics, Professor Witoszynski, and the specialist in the durability of metals, Professor Huber. In Cracow the School of Mines attracted attention with its work, done by Czopiwski and Skapski, in the field of special alloys.

Where formerly humanistic studies preponderated, the scale was now turned in the direction of natural and exact sciences. Of history, the most popular of studies, Poland had twenty-one university chairs; but of mathematics twenty-nine, of geology and physics twenty-one each, of botany twenty-five, and of chemistry fifty-two. Polish mathematics have been much in the limelight, in particular those of the Warsaw school, with their journal *Fundamenta Mathematicae*. Their speciality was mathematical logic, and their chief workers Sierpinski and Lesniewski. The Lwow University group, with Banach at its head, published their own journal *Studia Mathematicae*. As collaborators in certain problems all these men had the help of a group of philosopher-logicians, with Lukasiewicz of Warsaw as the chief.

Astronomy was represented by Banachiewicz and Wilk, meteorology by Gorczynski and Arctowski.

In the realm of physics the Warsaw School led the way, with Professor Pienkowski as its presiding genius. He

created one of the first centres of the photography of light in Europe, and fifty published treatises stood to its credit. In the field of theoretical physics the chief representative was Czeslaw Bialobrzeski. Specialists in Bio-Chemistry were attracted mainly by the problems of the hormones and the vitamins. Their pioneer was Casimir Funk, who introduced the term *vitamins* into science. His book on this subject, published in New York, is regarded by specialists as a classic. Analogous fame among both physicists and chemists is enjoyed by Swietoslowski (formerly Minister of Education), thanks to his researches in thermo-chemistry. His work on the problems of fermentation have brought deserved renown to Jakob Parnas.

Among biologists the most famous has been Rudolf Weigl, an investigator of transplantation and parasites, known everywhere for his contribution to the war on spotted fever. His originality in cultivating the typhus germ, and his typhus serum have been of immense value all over the world. Other biologists of distinction have been Hoyer of Cracow, nad Bialaszewicz of Warsaw—editor of *Acta Biologica*. In the nearby field of botany Szafer Hryniewicz, and Krzemieniewski have made their name.

Two veteran Lwow professors are well-known in the world of international affairs: Eugene Romer for his studies in geography, and for his maps (made and published under his own direction); and the physical anthropologist, Jan Czekanowski, an opponent of Nazi racial theories.

Lying as it does on the great plain connecting Western Europe with the steppes of Russia and the boundless east, Poland has become an important field for pre-historic excavation. In the past twenty years many important discoveries have been made. The most notable were those at Biskupin, near Goplo east of Poznan. They were the work of Professor Joseph Kostrzewski, and a brief descrip-

tion with photographs appeared in the *Illustrated London News*. On this spot a settlement of the Lusatian period (800-500 B.C.) had been silted up and then covered by the waters of the lake. This settlement has now been laid bare, and we have been given a picture of the life men lived twenty-five hundred years ago—their buildings, their occupations and their social organization. Kostrzewski has established the fact of an almost unbroken continuity of civilization in those regions. There has never at any time been a break, with a foreign people in possession. Although there were invasions, and the Goths may have tarried here for a short time, the kernel of the population has been the same. Seeing that the evidence found in Biskupin revealed a distinctly Slavonic type of building, German observers have been annoyed at these conclusions; and Kostrzewski himself was at once arrested when the German armies entered Poznan. Since then, there is no news of him.

In the field of sociology distinction has been won by Florian Znaniecki of Poznan, and by the now deceased Stefan Czarnowski of Warsaw. As a chapter in the history of the cult of heroes, the latter's great study of St. Patrick and the worship of serpents, preceded the French sociological school of Durkheim at least in regard to its essential thesis. About Malinowski's work as sociologist and anthropologist, Englishmen know even more than we do in Poland. An important place in the field of ethnology is held by Casimir Moszynski, of Wilno, author of a fine atlas of the study of Slavonic culture. Closely akin to sociology is statistics. Here I may claim for the work of the Central Statistical Bureau in Warsaw, general recognition. Their *Quarterly*, and their *Concise Statistical Year Book of Poland* are known everywhere. The latter is sold yearly in 100,000 copies at home and has been published regularly in French and English for the use of foreigners. The newest issue, covering the year 1939, is now being printed in England.

Legal studies in Poland have been strongest on the historical side. The history of Polish Law has been the subject of notable works by Balzer of Lwow, and Kutrzeba of Cracow. Roman law found its specialists in Wroblewski, Lyskowski, and Taubenschlag; canonical in Abraham and Vetulani.

Among a large number of historians, Konopczynski has achieved prominence in the political field, Bujak as an economic historian, Fijalek in Church history, Halecki in the Eastern European field, Birkenmajer as a historian of science, Kukiel in the military field, Michalski in the history of the philosophy, and Semkowicz in historical geography. Proximity to the Orient has provoked Oriental studies of all kinds, among them Gawronski, Kotwicz, and Kowalski—the editor of the *Orientalist Year Book*. In Slavonic Philology, Rozwadowski and Nitsch led the way, the latter serving as editor of the *Slavonic Year Book*, which was a recognized authority in its field. In comparative philology we had Kurylowicz, in classics Sinko, famous for his very original *History of Greek Literature*. English studies, had a worthy exponent in Roman Dyboski, German in Lempicki, Italian in Wedkiewicz, Russian in Lednicki. Two men had won distinction in aesthetics—Folkierski and Ingarden.

Higher institutions of learning in Poland in 1939 numbered more than twenty. The number of professors in all subjects was 907, of lecturers and assistants 2,852, while the total number of students was 48,000. Of these 13,600 were women. The yearly budget expenditure on higher education and research was about 30,000,000 zlotys.

Figures alone give but a poor picture of the quality and the dimensions of work done. So great was the urge, that it seemed as if each generation was trying to make up what those going before had neglected. Conditions were never easy, particularly during the years of world-crisis;

yet the very fact of national re-birth seemed to cast a spell on those engaged in serious work, and lend them unusual strength. The next ten years would have brought still more and better results, had not the tempest of war swept everything away.

EPILOGUE

THE destruction of Polish science and learning is far more complete to-day, than it ever was during the worst years of the Partitions. In the provinces seized by the Germans all higher schools of every kind have been closed, all scientific societies and journals abolished. Not a single book or serious article has been allowed in print. General Governor Frank himself declared : ' The Polish slave-people (Knechten-volk) has no need of education. The elementary school is more than enough. There will never again be a higher institution of learning in Poland ; instead, there will be an intellectual desert.' The greater part of the teaching staffs were arrested and sent to concentration camps, an example being the herding together of the whole Cracow professorial body, to the number of 180, and their deportation to Oranienburg in November 1939. Nearly a score died as a result, and their ashes were sent home to their families. Not a few are still in durance, and the news coming from them is pitiable. Following their principle that the whole of the community is responsible for the actions of every member, the Germans have not hesitated to shoot eminent scientists, though they were innocent. Among them was the eminent zoologist Kopec, notable for his original studies of insect life.

All libraries have been closed, the contents of many have been carried off. Others have been reopened as German institutions and are meant to serve the cause of the Germanization of Poland. All museums, galleries, collections of archives or other treasures, have been subject to repeated searchings, and whatever seemed to have special value was taken away to the Reich. Even church and cathedral treasures, including *objecta sacra*, have not escaped this

ordeal. Some of the work of plundering scientific institutions was done by German professors of distinction, who had been guests not long since in Poland at scientific congresses. In some cases these gentlemen had with them copies of the receipted bills prepared by the German firms which had sold the equipment to Poland, and so knew exactly what there was to be taken away.

Already during two weeks of heavy bombardment Warsaw had lost many of its libraries, museums and other treasures. But it must be said that the systematic plundering carried on after hostilities were concluded brought far worse losses on the Polish nation. Only one meagre example of compromise in this regard has become known. In May a year ago, permission was given to the School of Engineering in Warsaw to open a few rooms in the department of surveying, to serve the needs of industry, and to study the food question. But a written order was given that no sort of teaching or research would be permitted, nor was any student of any kind allowed entry. Care has been taken to have all buildings connected with education requisitioned for use by the invaders. The Board of Education is occupied by the Gestapo, the university by the Security Police, the middle schools by the army, etc., etc. The Jewish students' residence in Cracow has been made into a public brothel.

Eastern Poland, including two university centres, Lwow and Wilno, were overrun and annexed by Soviet Russia.

The only centre of higher studies existing for Poles to-day is the newly-formed Polish School of medicine in the university of Edinburgh. Here about eighty students, mostly in the final stages of their work, are now engaged in preparing themselves for national service. Apart from this, it is hoped that a centre of Polish Studies may be established very soon in the United States, where a number of Polish professors are now living.

More than once in its history, the Polish people has

suffered a period of subjection, and survived it. None of us has any doubt that even the present storm will pass ; and that Poland will come out of their inferno purified and renewed in strength. When that happens, Polish learning will again take up its task, and go forward with the other peoples of the world to greater and better things.

